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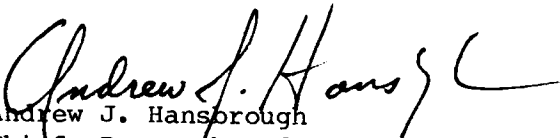
FOREWORD

This report contains a listing of the NASA Langley Research Center's scientific and technical research output for calendar year 1986.

The intent of this report is to provide a greater awareness of the broad scope of results and the importance of the research and development work conducted by scientists and engineers at Langley. This current awareness is mandated by the National Aeronautics and Space Act of 1958, which provides for the widest practical dissemination of NASA research.

During calendar year 1986, Langley's contributions to NASA and non-NASA literature included 152 NASA Formal Reports, 129 Quick-Release Technical Memorandums, 234 Contractor Reports, 283 Journal Articles and Other Publications, 574 Meeting Presentations, 233 Technical Talks, 15 Computer Programs, 77 Tech Briefs, 24 Patents, and 12 Special Documents. In addition, during the year, 11 conferences, symposia, and workshops were sponsored or cosponsored by Langley and held locally.

Comments or suggestions concerning this publication should be addressed to the Research Information and Applications Division, Mail Stop 180A, NASA Langley Research Center, Hampton, Virginia 23665-5225.


Andrew J. Hansbrough
Chief, Research Information
and Applications Division

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CONFERENCES SPONSORED OR COSPONSORED BY LANGLEY AND HELD LOCALLY IN 1986

Title of conference	Date	Langley contacts	Langley		Non-Langley	
			Speakers	Attendees	Speakers	Attendees
1. Workshop on Turbulence Relative to Aviation, Missile, and Space Programs	Apr. 2-4	H. N. Murrow	2	14	13	60
2. Workshop on Aircraft Tire Testing Requirements	May 7	T. J. Yager	2	8	4	28
3. Sixth Conference on Atmospheric Radiation	May 12-16	B. A. Wielicki	14	28	73	110
4. "SIMP" Code Users Workshop	May 21-22	N. A. Talcott	0	11	2	17
5. Workshop on Conceptual Aircraft Design	May 28-29	C. E. K. Morris	6	14	1	23
6. Electronics Reliability & Measurement Technology Conference/Workshop	June 3-5	J. S. Heyman	0	20	25	80
7. Eighth International Conference on Spectral Line Shapes	June 9-13	R. J. Exton	1	7	2	115
8. NASA/Royal Signals and Radar Establishment Workshop on Closed-Cycle Frequency-Stable CO ₂ Laser Technology	June 10-12	G. M. Wood R. V. Hess	3	19	17	43
9. Space Construction Conference	Aug. 6-7	J. A. Hagaman	5	69	12	90
10. Symposium on Sensitivity Analysis in Engineering	Sept. 25-26	H. M. Adelman	3	36	21	65
11. First NASA/DOD CSI Technology Conference	Nov. 18-21	R. L. Wright	20	79	33	278
Total			56	305	203	909

INTRODUCTION

The NASA Langley Research Center is one of the Nation's leading laboratories for research and development in the sciences of aeronautics and space technology. Langley conducts basic and applied research in fluid and flight mechanics, structures and materials, acoustics and noise reduction, measurement and instrumentation systems, numerical methods and techniques, data systems, electronics, physics, chemistry, and Earth and space sciences.

This publication is a compilation of Langley's scientific and technical research output for 1986 which is processed through the Center's Research Information and Applications Division, an integral part of NASA's Agency-wide Scientific and Technical Information (STI) system. This document is intended as a reference summary for researchers and as a current awareness publication for the scientific, research, and academic community.

The results of Langley's research are disseminated in a variety of NASA and non-NASA scientific and technical media and information systems. Details of the availability of the research references in this document are found in the section, "Availability," on page vii.

The citations are grouped first by Langley Directorates, then by the Langley Office or Division to which the senior author or innovator belongs. Citations are listed alphabetically by author or innovator under the following headings: Formal Reports (Technical Papers, Technical Memorandums, Conference Publications, Reference Publications, and Special Publications), Quick-Release Technical Memorandums, Contractor Reports, Journal Articles and Other Publications, Meeting Presentations, Technical Talks, Computer Programs, Tech Briefs, and Patents. Citations for Special Documents are listed under the appropriate Office or Division where applicable. If a citation has more than one author, it is listed only once under the first author's name. The subject category number used to index the citation and the Research Technology Objectives and Plans (RTOP) number are noted below citations when appropriate.

Computer Programs listed are those which were submitted by Langley to COSMIC in 1986.

The NASA Tech Briefs cited have either been published¹ or submitted in 1986 for publication in "NASA Tech Briefs," a journal for United States industry, entrepreneurs, and academia. Free subscriptions to this journal are available through the publisher, NASA Tech Briefs, 41 East 42nd Street, Suite 921, New York, New York 10017-5391 or the NASA Technology Utilization Program by writing to the Technology Utilization Office, NASA Scientific and Technical Information Facility, P. O. Box 8757, Baltimore/Washington International Airport, Maryland 21240.

Patents listed, which are owned in whole or in part by Langley Research Center personnel, have been published in issues of "Scientific and Technical Aerospace Reports" (STAR), a NASA announcement journal for report literature. A subscription

¹Those submitted in 1985 (and therefore listed in the 1985 issue of this document) but published in 1986 have not been listed.

to STAR is available from the U.S. Government Printing Office (GPO) or to qualified recipients from the NASA Scientific and Technical Information Facility (STIF).

Publication of some journal articles was not known at press time for the 1985 issue of this document. These articles are therefore listed in the 1986 issue.

AVAILABILITY

<u>Category</u>	<u>Source</u>
Formal Reports	National Technical Information
Quick-Release Technical Memorandums	Service (NTIS)
Contractor Reports	5285 Port Royal Road Springfield, VA 22161
	NASA Scientific and Technical Information Facility (STIF)
	P. O. Box 8757 Baltimore/Washington International Airport, MD 21240
	NASA Industrial Applications Centers (IAC) (See Appendix for addresses of IAC's)
Computer Programs	Computer Software Management and Information Center (COSMIC) Software Information Services Computer Services Annex University of Georgia Athens, GA 30602
Langley Tech Briefs	Office of Technology Utilization and Applications Mail Stop 139A NASA Langley Research Center Hampton, VA 23665
Patents:	
Patent Application Specifications	National Technical Information Service (NTIS)
Printed Copies	Commissioner of Patents and Trademarks U.S. Patent and Trademark Office Washington, DC 20231

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NASA LANGLEY RESEARCH CENTER
Hampton, Virginia

CALENDAR YEAR 1986

PUBLICATIONS FOR OFFICE OF THE DIRECTOR

Formal Reports

1. Anon.: Research and Technology 1986 - Annual Report of the Langley Research Center. NASA TM-89037, December 1986, 113 p.
(Avail: NTIS Subject Category 99)

Quick-Release Technical Memorandums

2. Anon.: Langley Aerospace Test Highlights - 1985. NASA TM-87703, May 1986, 98 p.
(Avail: NTIS Subject Category 99)

Contractor Reports

3. Abarbanel, S.; Bayliss, A.; and Lustman, L.: Non-reflecting Boundary Conditions for the Compressible Navier-Stokes Equations. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178068, March 1986, 27 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
4. Adams, L. M.; LeVeque, R. J.; and Young, D. M.: Analysis of the SOR Iteration for the 9-Point Laplacian. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178212, December 1986, 40 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
5. Anon.: Cumulative Reports and Publications Through December 31, 1985. (NAS1-18107, NAS1-17070, NAS1-17130, NAS1-15810, NAS1-16394, NAS1-14101, and NAS1-14472 Institute for Computer Applications in Science and Engineering.) NASA CR-178088, April 1986, 44 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
6. Anon.: Semi-Annual Report, October 3, 1985 Through March 31, 1986. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178119, April 1986, 57 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
7. Banks, H. T.; Crowley, J. M.; and Rosen, I. G.: Methods for the Identification of Material Parameters in Distributed Models for Flexible Structures. (NAS1-16394 and NAS1-17130 Institute for Computer Applications in Science and Engineering.) NASA CR-178135, May 1986, 60 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)

8. Banks, H. T.; Gates, S. S.; Rosen, I. G.; and Wang, Y.: The Identification of a Distributed Parameter Model for a Flexible Structure. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178199, October 1986, 43 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
9. Banks, H. T.; and Iles, D. W.: On Compactness of Admissible Parameter Sets: Convergence and Stability in Inverse Problems for Distributed Parameter Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178128, June 1986, 16 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
10. Banks, H. T.; and Ito, K.: A Numerical Algorithm for Optimal Feedback Gains in High Dimensional LQR Problems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178207, November 1986, 31 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
11. Banks, H. T.; and Rosen, I. G.: Computational Methods for the Identification of Spatially Varying Stiffness and Damping in Beams. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178198, October 1986, 42 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
12. Bayliss, A.; Jordan, K. E.; LeMesurier, B. J.; and Turkel, E.: A Fourth Order Accurate Finite Difference Scheme for the Computation of Elastic Waves. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178089, April 1986, 44 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
13. Bennett, J.; and Hall, P.: On the Secondary Instability of Taylor-Görtler Vortices to Tollmien-Schlichting Waves in Fully-Developed Flows. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178221, November 1986, 46 p.
(Avail: NTIS Subject Category 34 RTOP 505-90-21)
14. Bernardi, C.; Canuto, C.; and Maday, Y.: Generalized Inf-Sup Condition for Chebyshev Approximation of the Navier-Stokes Equations. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178220, December 1986, 67 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
15. Bokhari, S. H.: Multiprocessing the Sieve of Eratosthenes. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178131, June 1986, 26 p.
(Avail: NTIS Subject Category 61 RTOP 505-31-83)
16. Brenier, Y.; and Osher, S. J.: The Discrete One-Sided Lipschitz Condition for Convex Scalar Conservation Laws. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178225, November 1986, 33 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)

17. Burns, J. A.; Cliff, E. M.; and Powers, R. K.: Computational Methods for the Control of Distributed Parameter Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178108, May 1986, 18 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
18. Canuto, C.; and Quarteroni, S.: On the Boundary Treatment in Spectral Methods for Hyperbolic Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178055, January 1986, 19 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
19. Chen, T. F.; and Fix, G. J.: Least Squares Finite Element Simulation of Transonic Flows. (NAS1-17070 Institute for Computer Applications in Science and Engineering.) NASA CR-178121, May 1986, 28 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
20. Dutt, P.: A Riemann Solver Based on a Global Existence Proof for the Riemann Problem. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178042, January 1986, 12 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
21. Dutt, P.; and Ta'asan, S.: A Spline-Based Parameter Estimation Technique for Static Models of Elastic Structures. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178193, October 1986, 33 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
22. Eidson, T. M.; Hussaini, M. Y.; and Zang, T. A.: Simulation of the Turbulent Rayleigh-Benard Problem Using a Spectral/Finite Difference Technique. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178027, February 1986, 43 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
23. Erlebacher, G.; and Hussaini, M. Y.: Incipient Transition Phenomena in Compressible Flows Over a Flat Plate. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178111, June 1986, 21 p.
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24. Gibson, J. S.; and Rosen, I. G.: Numerical Approximation for the Infinite-Dimensional Discrete-Time Optimal Linear-Quadratic Regulator Problem. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178081, March 1986, 82 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
25. Gibson, J. S.; and Rosen, I. G.: Shifting the Closed-Loop Spectrum in the Optimal Linear Quadratic Regulator Problem for Hereditary Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178082, March 1986, 47 p.
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26. Gibson, J. S.; and Rosen, I. G.: Computational Methods for Optimal Linear-Quadratic Compensators for Infinite Dimensional Discrete-Time Systems. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178200, October 1986, 25 p.
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27. Gokhale, M. B.: PS: A Nonprocedural Language With Data Types and Modules. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178196, October 1986, 19 p.
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28. Goldberg, M.; and Tadmor, E.: Convenient Stability Criteria for Difference Approximations of Hyperbolic Initial-Boundary Value Problems II. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178134, June 1986, 38 p.
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29. Gottlieb, D.; Lustman, L.; and Tadmor, E.: Convergence of Spectral Methods for Hyperbolic Initial-Boundary Value Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178063, January 1986, 15 p.
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30. Gottlieb, D.; Lustman, L.; and Tadmor, E.: Stability Analysis of Spectral Methods for Hyperbolic Initial-Boundary Value Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178041, January 1986, 38 p.
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31. Gunzburger, M. D.: Mathematical Aspects of Finite Element Methods for Incompressible Viscous Flows. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178180, September 1986, 46 p.
(Avail: NTIS Subject Category 65 RTOP 505-90-21)
32. Gunzburger, M. D.; and Nicolaides, R. A.: On Substructuring Algorithms and Solution Techniques for the Numerical Approximation of Partial Differential Equations. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178122, May 1986, 32 p.
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33. Hall, P.: The Nonlinear Development of Görtler Vortices in Growing Boundary Layers. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178215, December 1986, 52 p.
(Avail: NTIS Subject Category 34 RTOP 505-90-21)
34. Hariharan, S. I.: Nonlinear Acoustic Wave Propagation in Atmosphere. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178069, March 1986, 28 p.
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35. Hariharan, S. I.; and Sudharsanan, S. I.: Wave Envelope Technique for Multimode Wave Guide Problems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178218, December 1986, 29 p.
(Avail: NTIS Subject Category 64 RTOP 505-90-21)
36. Harten, A.: On the Nonlinearity of Modern Shock-Capturing Schemes. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178206, October 1986, 62 p.
(Avail: NTIS Subject Category 59 RTOP 505-90-21)
37. Harten, A.; Engquist, B.; Osher, S. J.; and Chakravarthy, S.: Uniformly High Order Accurate Essentially Non-Oscillatory Schemes III. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178101, April 1986, 97 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
38. Hussaini, M. Y.: Some Recent Developments in Spectral Methods. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178178, August 1986, 19 p.
(Avail: NTIS Subject Category 34 RTOP 505-90-21)
39. Hussaini, M. Y.; Lakin, W. D.; and Nachman, A.: On Similarity Solutions of a Boundary Layer Problem With an Upstream Moving Wall. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178104, May 1986, 25 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
40. Hussaini, M. Y.; and Zang, T. A.: Spectral Methods in Fluid Dynamics. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178103, May 1986, 62 p.
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41. Iqbal, M. A.: Approximate Algorithms for Partitioning and Assignment Problems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178130, June 1986, 30 p.
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42. Iqbal, M. A.; Saltz, J. H.; and Bokhari, S. H.: Performance Tradeoffs in Static and Dynamic Load Balancing Strategies. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178073, March 1986, 24 p.
(Avail: NTIS Subject Category 66 RTOP 505-31-83)
43. Jackson, T. L.: Effect of Thermal Expansion on the Stability of Two-Reactant Flames. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178168, August 1986, 13 p.
(Avail: NTIS Subject Category 59 RTOP 505-31-83)
44. Jordan, H. F.: The Force on the Flex: Global Parallelism and Portability. (NAS1-17070 Institute for Computer Applications in Science and Engineering.) NASA CR-178161, August 1986, 21 p.
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45. Kopriva, D. A.: A Spectral Multidomain Method for the Solution of Hyperbolic Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178105, May 1986, 47 p.
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46. Kopriva, D. A.: A Practical Assessment of Spectral Accuracy for Hyperbolic Problems With Discontinuities. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178226, December 1986, 22 p.
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47. Lakin, W. D.: A Combined Integrating and Differentiating Matrix Formulation for Boundary Value Problems on Rectangular Domains. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178074, March 1986, 30 p.
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48. Lamm, P. K.; and Murphy, K. A.: Estimation of Discontinuous Coefficients and Boundary Parameters for Hyperbolic Systems. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178133, June 1986, 39 p.
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49. Lee, T-Y; Kravaris, C.; and Seinfeld, J.: History Matching by Spline Approximation and Regularization in Single-Phase Areal Reservoirs. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178087, March 1986, 53 p.
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50. LeVeque, R. J.; and Trefethen, L. N.: Fourier Analysis of the SOR Iteration. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178191, September 1986, 9 p.
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51. Lustman, L.; and Rose, M. E.: A Three Dimensional Calculation of Elastic Equilibrium for Composite Materials. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178158, July 1986, 28 p.
(Avail: NTIS Subject Category 64 RTOP 505-31-83)
52. Ma, C. C. H.: Inherent Robustness of Discrete-Time Adaptive Control Systems. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178224, December 1986, 38 p.
(Avail: NTIS Subject Category 08 RTOP 505-90-21)
53. Maestrello, L.; Bayliss, A.; Parikh, P.; and Turkel, E.: Stability and Control of Compressible Flows Over a Surface With Concave-Convex Curvature. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178143, July 1986, 34 p.
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54. Mhuiris, N. M.: Calculations of the Stability of Some Axisymmetric Flows Proposed as a Model of Vortex Breakdown. (NAS1-17070 Institute for Computer Applications in Science and Engineering.) NASA CR-178124, May 1986, 36 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
55. Mhuiris, N. M.: The Construction and Use of Divergence Free Vector Expansions for Incompressible Fluid Flow Calculations. (NAS1-17070 Institute for Computer Applications in Science and Engineering.) NASA CR-178100, April 1986, 21 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
56. Moitra, A.; Turkel, E.; and Kumar, A.: Application of a Runge-Kutta Scheme for High-Speed Inviscid Internal Flows. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178053, January 1986, 26 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
57. Morrison, J. H.; and Napolitano, M.: Efficient Solutions of Two-Dimensional Incompressible Steady Viscous Flows. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178197, October 1986, 44 p.
(Avail: NTIS Subject Category 34 RTOP 505-90-21)
58. Myers, T. J.; and Gokhale, M. B.: Parallel Scheduling of Recursively Defined Arrays. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178195, October 1986, 25 p.
(Avail: NTIS Subject Category 61 RTOP 505-90-21)
59. Nicol, D. M.: Optimal Partitioning of Random Programs Across Two Processors. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178159, August 1986, 26 p.
(Avail: NTIS Subject Category 62 RTOP 505-31-83)
60. Nicol, D. M.: Expected Performance of m-Solution Backtracking. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178162, August 1986, 25 p.
(Avail: NTIS Subject Category 61 RTOP 505-31-83)
61. Nicol, D. M.; and Reynolds, P. F., Jr.: Dynamic Remapping Decisions in Multi-Phase Parallel Computations. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178174, September 1986, 47 p.
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62. Nicol, D. M.; and Reynolds, P. F., Jr.: An Optimal Repartitioning Decision Policy. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178035, February 1986, 18 p.
(Avail: NTIS Subject Category 66 RTOP 505-31-83)

63. Nicol, D. M.; and Saltz, J. H.: Dynamic Remapping of Parallel Computations With Varying Resource Demands. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178150, July 1986, 55 p.
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64. Nicolaidides, R. A.: Construction of Higher Order Accurate Vortex and Particle Methods. (NAS1-17070 and NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178132, June 1986, 20 p.
(Avail: NTIS Subject Category 34 RTOP 505-31-83)
65. Nicolaidides, R. A.; and Choudhury, S.: Iterative Methods for Elliptic Finite Element Equations on General Meshes. (NAS1-18107 Institute for Computer Applications in Science and Engineering.) NASA CR-178223, November 1986, 43 p.
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Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

PUBLICATIONS FOR OFFICE OF DIRECTOR FOR ELECTRONICS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

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No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

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Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

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Formal Reports

No formal reports.

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598. Baucom, R. M.: Advanced Composite Fabrication Technology. Presented at the Advances in High-Performance Composite Technology Conference, May 6-7, 1986, Clemson, South Carolina.
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- 642. Tai, H.: Analytic Evaluation of Two Center Molecular Integrals. Presented at the American Physical Society 1986 March Meeting, March 31 - April 4, 1986, Las Vegas, Nevada.
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1166. McClinton, C. R.: The National Aero-Space Plane Program. Presented at the Experimental Aircraft Association Annual Convention, July 31 - August 8, 1986, Oshkosh, Wisconsin.
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- 1178. Zang, T. A.: Simulation of Compressible and Reacting Flows. Presented at the Institute for Mathematics and Its Applications Computational Fluid Dynamics and Reacting Gas Flows Workshop, September 14-23, 1986, Minneapolis, Minnesota.
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- 1179. Balasubramanian, R. (Cambridge Hydrodynamics, Inc.); and Lin, J. C.; and Pitts, B. H. (Langley Research Center): WAVEGEM--A Package of Programs to Calculate Two-Dimensional Turbulent Flow Over Wave-Shaped Geometries. NASA Tech Brief LAR-13659.
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Patents

No patents.

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Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

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No patents.

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1285. Browell, E. V.: Airborne Lidar Measurements of Ozone and Aerosols Over the Amazon Rain Forest. Presented at the 1986 Optical Society of America Annual Meeting, October 19-24, 1986, Seattle Washington. Abstract published in Technical Digest, p. 113. Summary published in the Journal of the Optical Society of America.
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1288. Callis, L. B.; and Natarajan, M.: Explanation of the Spring Minimum in Antarctic Ozone. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 251.
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(Subject Category 47 RTOP 146-74-04)
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(Subject Category 47 RTOP 146-74-04)
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1292. Connors, V. S.; Reichle, H. G., Jr.; Sullivan, K. D.; and Helfert, M. R.: Global Observations of Biomass Burning From Space. Presented at the 1986 Fall American Geophysical Union Meeting, December 8-12, 1986, San Francisco, California. Abstract published in EOS Transactions, Volume 67, No. 44, November 4, 1986, p. 878.
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1293. Cooper, J. E.; Barkstrom, B. R.; Luther, M. R.; Kopia, L. P.; Cess, R. D.; Halyo, N.; and Chrisman, D. A.: Initial Flight Performance of ERBE Instrument. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J1.3. Extended abstract published in proceedings, p. J4.
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1295. Exline, J. D.; and Levine, J. S.: The Origin and Evolution of the Atmosphere: Classroom Experiments, Demonstrations, and Activities. Presented at the ISSOL Eighth International Conference on the Origin of Life, July 21-25, 1986, Berkeley, California. Paper No. 012. Abstract published in Origins of Life and Evolution of the Biosphere, Volume 16, Nos. 3/4, 1986, p. 197.
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(Subject Category 46 RTOP 176-10-05)
1297. Garstang, M.; Beck, S. M.; Browell, E. V.; Gregory, G. L.; Harriss, R. C.; Hill, G. F.; and Sachse, G. W.: The Influence of Convection on Tropospheric Chemistry in the Central Amazon. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 248.
(Subject Category 46 RTOP 176-40-05)
1298. Garstang, M.; Harriss, R. C.; Browell, E. V.; Sachse, G. W.; Simpson, J.; Tao, W-K.; and Torres, A. L.: Trace Gas Exchanges and Transports Over the Amazonian Rain Forest. Presented at the American Meteorological Society Second International Conference on Southern Hemisphere Meteorology, December 1-5, 1986, Wellington, New Zealand. In Proceedings.
(Subject Category 46 RTOP 176-40-05)

1299. Gregory, G. L.: Ozone: An Airborne Survey of the Boundary Layer Across the Amazon Basin. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 247.
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1300. Grose, W. L.: Modeling the Transport of Chemically Active Constituents in the Stratosphere. Presented at the NATO Transport Processes in the Middle Atmosphere, November 23-27, 1986, Erice, Italy. Proceedings pending.
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1301. Grossmann, B. E.; Singh, U. N.; Higdon, N. S.; Cotnoir, L. J.; Wilkerson, T. D.; and Browell, E. V.: Linewidth Characteristics of Raman-Shifted Dye Laser Output at 720 and 940 nm. Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 300-304.
(Subject Category 47 RTOP 618-32-33)
1302. Haggard, K. V.; Remsberg, E. E.; and Russell, J. M., III: The Nimbus 7 LIMS MAP Archival Tape. Presented at the American Meteorology Society Second Conference on Satellite Meteorology/Remote Sensing and Applications, May 12-16, 1986, Williamsburg, Virginia. Paper No. 4.1. In Proceedings, p. 97-101.
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1305. Heck, P. W.; Fishman, J.; and Minnis, P.: A Study of Biomass Burning and the Composition of the Tropical Troposphere Using Satellite Data. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 246.
(Subject Category 46 RTOP 176-10-05)
1306. Hypes, W. D.; and Reichle, H. G., Jr.: Measuring the Global Distribution of Carbon Monoxide From Space. Presented at the AIAA 24th Aerospace Sciences Meeting, January 6-9, 1986, Reno, Nevada. Published in AIAA 86-0059 Compendium of Open Forum Abstracts.
(Subject Category 45 RTOP 618-22-31)

1307. Ismail, S.; and Browell, E. V.: Influence of Rayleigh-Doppler Broadening on the Selection of H₂O DIAL System Parameters. Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 65-69.
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1308. Keating, G. M.; Nicholson, J., III; Brasseur, G.; De Rudder, A.; Schmailzl, U.; and Pitts, M. C.: First Observation of Stratospheric HNO₃ and NO₂ Response to Short-Term Solar UV Variability. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 253.
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(Subject Category 46 RTOP 673-41-07)
1310. Lambeth, J. D.; and Callis, L. B.: The Role of Non-Adiabatic Eddys in Establishing Diabatic Transport. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 251.
(Subject Category 46 RTOP 673-62-02)
1311. Larsen, J. C.; McMaster, L. R.; McCormick, M. P.; and Chu, W. P.: Measurements of Lower Stratospheric/Upper Tropospheric Water Vapor by the SAGE II Instrument. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J2.6. Extended abstract published in proceedings, p. J56-J58.
(Subject Category 46 RTOP 665-40-40)
1312. Lee, R. B., III: Earth Radiation Budget Experiment (ERBE) Solar Irradiance Measurements. Presented at the 1986 Fall American Geophysical Union Meeting, December 8-12, 1986, San Francisco, California. Abstract published in EOS Transactions, Volume 67, No. 44, November 4, 1986, p. 881.
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1313. Lee, R. B., III; Barkstrom, B. R.; Luther, M. R.; and Cess, R. D.: Solar Irradiance Measurements Using the Earth Radiation Budget Experiment Solar Monitors. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J1.4. Extended abstract published in proceedings, p. J5-J8.
(Subject Category 47 RTOP 619-12-01)
1314. Levine, J. S.: Oxygen in the Early Atmosphere. Presented at the ISSOL Eighth International Conference on the Origin of Life, July 21-25, 1986, Berkeley, California. Paper No. 015. Abstract published in Origins of Life and Evolution of the Biosphere, Volume 16, Nos. 3/4, 1986, p. 203-204.
(Subject Category 46 RTOP 199-50-16)

1315. Levine, J. S.; Hoell, J. M., Jr.; and McNeal, R. J.: Space Opportunities for Tropospheric Chemistry Research. Presented at the AMS Second Conference on Satellite Meteorology/Remote Sensing and Applications, May 12-16 1986, Williamsburg, Virginia. Paper No. 10.4. In Proceeding, p. 500-502.
(Subject Category 46 RTOP 176-20-02)
1316. Levine, J. S.; and Kuhn, W. R.: The Early Atmospheres of Earth and Mars. Presented at the ISSOL Eighth International Conference on the Origin of Life, July 21-25, 1986, Berkeley, California. Paper No. 024. Abstract published in Origins of Life and Evolution of the Biosphere, Volume 16, Nos. 3/4, 1986, p. 218-219.
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(Subject Category 46 RTOP 176-20-02)
1318. McCormick, M. P.: Satellite and Aircraft Measurements of Stratospheric Aerosol Particles. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J2.1. Extended abstract published in proceedings, p. J42-J45.
(Subject Category 46 RTOP 619-12-30)
1319. McCormick, M. P.: The Lidar In-Space Technology Experiment (LITE). Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 14.
(Subject Category 46 RTOP 542-03-11)
1320. McCormick, M. P.: The Application of Lidar to Stratospheric Aerosol Studies. Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 201-202.
(Subject Category 46 RTOP 672-21-14)
1321. McCormick, M. P.: Satellite Measurements of Stratospheric Aerosols. Presented at the NATO Advanced Workshop on Transport Processes in the Middle Atmosphere, November 23-27, 1986, Erice, Italy. Proceedings pending.
(Subject Category 46 RTOP 665-45-30)
1322. McMaster, L. R.: Stratospheric Aerosol and Gas Experiment (SAGE II). Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J2.2. Extended Abstract published in proceedings, p. J46-48.
(Subject Category 46 RTOP 665-40-40)

1323. Minnis, P.; Harrison, E. F.; and Brooks, D. R.: Temporal Variability of the Radiation Budget Over the Tibetan Plateau Determined From the ERBE Satellites. Presented at the Meteorological Society of China and the American Meteorological Society Beijing International Radiation Symposium, September 2-6, 1986, Beijing, China. Proceedings of extended abstracts pending.
(Subject Category 47 RTOP 672-40-04)
1324. Park, J. H.; and Carli, B.: NLSF Analysis of Emission FT Spectra From Balloon Altitude. Presented at the 11th International Conference on Infrared and Millimeter Waves, October 20-24, 1986, Pisa, Italy. In Proceedings, p. 469-471.
(Subject Category 46 RTOP 147-44-02)
1325. Poole, L. R.; and Kent, G. S.: Airborne Lidar Observations of Arctic Polar Stratospheric Clouds. Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 210.
(Subject Category 46 RTOP 665-10-40)
1326. Reichle, H. G., Jr.: The Distribution of Tropospheric Carbon Monoxide During October 1984 as Measured by a Satellite-Borne Remote Sensor. Presented at the 1986 Fall American Geophysical Union Meeting, December 8-12, 1986, San Francisco, California. Abstract published in EOS Transactions, Volume 67, No. 44, November 4, 1986, p. 878.
(Subject Category 31 RTOP 618-22-31)
1327. Reichle, H. G., Jr.; Holland, J. A.; and Sherrill, R. T.: The Performance of a Spaceborne Remote Sensor for Measuring Trace Gases in the Lower Atmosphere. Presented at the Sensors Magazine and Expocon Management Associates, Inc., SENSORS EXPO Conference, September 17-19, 1986, Chicago, Illinois. Abstract in proceedings, Volume 1, p. 421.
(Subject Category 46 RTOP 618-22-31)
1328. Remsberg, E. E.: Analysis of the Mean Meridional Circulation Using Satellite Data. Presented at the NATO Transport Processes in the Middle Atmosphere, November 23-27, 1986, Erice, Italy. Proceedings pending.
(Subject Category 46 RTOP 673-41-10)
1329. Remsberg, E. E.; Russell, J. M., III; Solomon, S.; Kiehl, J. T.; and Kerridge, B. J.: The Accuracy of Nimbus 7 LIMS Temperature and Ozone Measurements in the Mesosphere. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 318.
(Subject Category 46 RTOP 673-41-10)
1330. Remsberg, E. E.; and Russell, J. M., III: The Nimbus 7 LIMS Water Vapor Measurements. Presented at the Mars: Evolution of Its Climate and Atmosphere (MECA) Workshop on Atmospheric H₂O Observations of Earth and Mars, September 25-27, 1986, Houston, Texas. Abstract to be published in proceedings.
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1331. Ritter, J. A.; and Fishman, J.: Parameterization of Convective Cloud Transport for One-Dimensional Models. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 244.
(Subject Category 46 RTOP 176-10-05)
1332. Russell, J. M., III: The Global Distributions of Middle Atmosphere NO₂ and H₂O Measured by the LIMS Experiment on Nimbus 7. Presented at the NATO Transport Processes in the Middle Atmosphere, November 23-27, 1986, Erice, Italy. Proceedings pending.
(Subject Category 46 RTOP 673-41-10)
1333. Russell, J. M., III; and McCormick, M. P.: Satellite-Borne Measurements of Middle Atmosphere Composition. Presented at the Royal Society Studies of the Middle Atmosphere, December 4-5, 1986, London, England. Paper to be published in the Philosophical Transactions of the Royal Society of London.
(Subject Category 46 RTOP 673-41-10)
1334. Sasano, Y.; and Browell, E. V.: Wavelength Dependence of Aerosol Backscatter Coefficients Obtained by Multiple Wavelength Lidar Measurements. Presented at the Atmospheric Environmental Service and York University and NASA Langley 13th International Laser Radar Conference, August 11-15, 1986, Toronto, Canada. Abstract published in NASA CP-2431, p. 28-31.
(Subject Category 74 RTOP 618-32-33)
1335. Smith, G. L.; Green, R. N.; Wielicki, B. A.; Suttles, J. T.; Avis, L. M.; and ERBE Science Team: ERBE Data Inversion. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J1.5. Extended abstract published in proceedings, p. J9-J13.
(Subject Category 47 RTOP 619-12-20)
1336. Talbot, R. W.; Andreae, M. O.; Andreae, T. W.; and Harriss, R. C.: Regional Aerosol Chemistry of the Amazon Basin, Brazil. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 248.
(Subject Category 45 RTOP 176-20-22)
1337. Venable, D. D.; Khatun, S.; Poole, L. R.; and Punjabi, A.: Simulated Laser Fluoresensor Signals From Subsurface Chlorophyll Distributions. Presented at the SPIE Technical Symposium Southeast on Optics and Optoelectronics, March 31 - April 4, 1986, Orlando, Florida. SPIE Paper No. 637-44.
(Subject Category 48 RTOP 161-35-04)
1338. Wallio, H. A.; and Gormsen, B. B.: An Ancillary Enhanced Measurement to Improve the Data Reduction and Interpretation of GFR Trace Gas Measurements. Presented at the 1986 Fall AGU Meeting, December 8-12, 1986, San Francisco, California. Abstract published in EOS Transaction, Volume 67, No. 44, November 4, 1986, p. 883.
(Subject Category 31 RTOP 618-22-31)

1339. Wang, P-H.; McCormick, M. P.; Swissler, T. J.; and Yue, G. K.: A Study of the Stratospheric Aerosol Size Distribution Utilizing Preliminary Data From SAGE II and Correlative Measurements. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. J2.8. Extended abstract published in proceedings, p. 64-67.
(Subject Category 46 RTOP 665-40-40)
1340. Wielicki, B. A.; Minnis, P.; and Parker, L.: The Effect of Spatial Resolution on Satellite Derived Cloud Cover. Presented at the AMS Sixth Conference on Atmospheric Radiation, May 12-16, 1986, Williamsburg, Virginia. Paper No. 4.8. Extended abstract published in proceedings, p. 85-89.
(Subject Category 47 RTOP 672-22-10)
1341. Wofsy, S. C.; Kaplan, W. A.; and Harriss, R. C.: Daily Exchange of CO₂ Between the Tropical Forest and the Atmosphere in the Central Amazon Basin. Presented at the 1986 Spring American Geophysical Union Meeting, May 19-23, 1986, Baltimore, Maryland. Abstract published in EOS Transactions, Volume 67, No. 16, April 22, 1986, p. 248.
(Subject Category 46 RTOP 176-20-09)

Technical Talks

1342. Ackerman, M; Lippens, C.; Chu, W. P.; and deMuer, D.: SAGE II Aerosol Extinction and Scattering Data From Balloon-Borne Photography. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 665-40-40)
1343. Anderson, I. C.; and Levine, J. S.: Biogenic NO and N₂O Fluxes. Presented at the 1986 American Society for Microbiology Annual Meeting, March 23-28, 1986, Washington, DC.
(Subject Category 46 RTOP 176-20-02)
1344. Benner, D. C.; Devi, V. M.; and Rinsland, C. P.: Molecular Parameters for Carbon Dioxide Absorptions in 3450 cm⁻¹ Spectral Region. Presented at the Ohio State University 41st Symposium on Molecular Spectroscopy, June 16-20, 1986, Columbus, Ohio.
(Subject Category 71 RTOP 147-23-11)
1345. Benner, D. C.; Rinsland, C. P.; and Devi, V. M.: Air-Broadened Halfwidths in the ν_3 Band of ¹²CH₄. Presented at the Ohio State University 41st Symposium on Molecular Spectroscopy, June 16-20, 1986, Columbus, Ohio.
(Subject Category 72 RTOP 147-23-11)
1346. Callis, L. B.: Possible Climatic Effects Due to Odd Nitrogen Variations Associated With the 11-Year Solar Cycle. Presented at the Australian National Committee for the World Climatic Program/IAMAP Conference on Mechanisms of Interannual and Longer Term Climatic Variations, December 8-12, 1986, Melbourne, Australia.
(Subject Category 46 RTOP 673-62-70)

1347. Callis, L. B.; and Natarajan, M.: Examination of Stratospheric Odd Nitrogen From 1979-1984: Reconciliation of Data and Theory. Presented at the European Geophysical Society Symposium on Middle Atmospheric Chemistry, August 25-30, 1986, Kiel, Federal Republic of Germany.
(Subject Category 46 RTOP 673-62-02)
1348. Chuan, R. L.; and Woods, D. C.: Stratospheric Particles After the Eruption of Mt. St. Helens and El Chichon. Presented at the Norman D. Watkins Symposium on Environmental Impact of Volcanism, March 13-14, 1986, Kingston, Rhode Island.
(Subject Category 46 RTOP 672-21-13)
1349. Ferebee, M. T.; Hoffman, L. H.; and Lee, R. B., III: Diagnostic Capabilities for Earth Radiation Budget Experiment Scanner Solar Calibrations. Presented at the 58th Annual Conference of the National Technical Association, June 23-28, 1986, Washington, D.C.
(Subject Category 61 RTOP 665-45-20)
1350. Fishman, J.: Trace Gas Emissions in the Tropics Deduced From Satellite Observations. Presented at the Scientific Committee on Oceanic Research, Bundesministerium fur Forschung und Technologie, et al., Second International Symposium on Biosphere - Atmosphere Exchange, March 16-21, 1986, Mainz, Germany.
(Subject Category 46 RTOP 176-40-05)
1351. Flaud, J.-M.; Camy-Peyret, C.; Devi, V. M.; Rinsland, C. P.; and Smith, M. A. H.: The ν_1 and ν_3 Bands of $^{18}\text{O}^{16}\text{O}^{18}\text{O}$ and $^{18}\text{O}^{18}\text{O}^{18}\text{O}$. Presented at the Ohio State University 41st Symposium on Molecular Spectroscopy, June 16-20, 1986, Columbus, Ohio.
(Subject Category 72 RTOP 147-23-11)
1352. Grose, W. L.: Dynamics and Transport Processes in the Stratosphere: Comparison of Three-Dimensional Simulations With Satellite Data. Presented at the IAMAP/DMG Meeting on Verification of Theories in Atmospheric Large/Medium Scale Dynamics, June 24-26, 1986, Burghausen, Germany.
(Subject Category 47 RTOP 673-64-02)
1353. Grose, W. L.: An Investigation of the Dynamics of the Middle Atmosphere Southern Hemisphere Using Satellite Data. Presented at the European Geophysical Society, Symposium on Middle Atmosphere Dynamics, August 25-30, 1986, Kiel, Federal Republic of Germany.
(Subject Category 47 RTOP 673-64-02)
1354. Harriss, R. C.: Atmospheric Methane From Wetlands. Presented at the Scientific Committee on Oceanic Research, Bundesministerium fur Forschung und Technologie, et al., Second International Symposium on Biosphere - Atmosphere Exchange, March 16-21, 1986, Mainz, Germany.
(Subject Category 46 RTOP 199-30-26)
1355. Keating, G. M.: Neutral Upper Atmospheres of Venus and Mars. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 673-41-07)

1356. Keating, G. M.: Proposed Reference Model for Ozone. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 673-41-07)
1357. Keating, G. M.; Pitts, M. C.; Brasseur, G.; and De Rudder, A.: Middle Atmosphere Response to Solar Short-Term UV Variability. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 673-41-07)
1358. Keating, G. M.; and Young, D. F.: Ozone Reference Models for CIRA. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 673-41-07)
1359. Lee, R. B., III; Ferebee, M. T.; and Hoffman, L. H.: Solar Calibration Approach for the Earth Radiation Budget Experiment Scanning Radiometers. Presented at the 58th Annual Conference of the National Technical Association, June 23-28, 1986, Washington, D.C.
(Subject Category 92 RTOP 619-12-01)
1360. McCormick, M. P.: Global Stratospheric Aerosol. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 665-40-40)
1361. McCormick, M. P.: Satellite Measurements of Aerosols in the Stratosphere. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 665-10-40)
1362. McCormick, M. P.: SAGE II: An Overview. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 665-40-40)
1363. McCormick, M. P.: Proposed Reference Model for Stratospheric Aerosols. Presented at the XXVI COSPAR Plenary Meeting and Associated Activities, June 30 - July 12, 1986, Toulouse, France.
(Subject Category 46 RTOP 665-10-40)
1364. Reichle, H. G., Jr.: The Distribution of Middle Tropospheric Carbon Monoxide as Measured by a Satellite-Borne Remote Sensor. Presented at the Scientific Committee on Oceanic Research, Bundesministerium fur Forschung und Technologie, et al., Second International Symposium on Biosphere - Atmosphere Exchange, March 16-21, 1986, Mainz, Germany.
(Subject Category 46 RTOP 618-22-31)

1365. Rinsland, C. P.; Zander, R.; Brown, L. R.; Farmer, C. B.; Park, J. H.; and Russell, J. M., III: First Stratospheric Measurements of Carbonyl Fluoride (COF_2) From High Resolution Infrared Solar Absorption Spectra Obtained by the ATMOS Experiment Aboard Spacelab 3. Presented at the Ohio State University 41st Symposium on Molecular Spectroscopy, June 16-20, 1986, Columbus, Ohio.
(Subject Category 72 RTOP 618-21-00)
1366. Russell, J. M., III: The HALOE Experiment Objectives and Test Results. Presented at the AIAA 24th Aerospace Sciences Meeting, January 6-9, 1986, Reno, Nevada.
(Subject Category 46 RTOP 678-12-14)
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Tech Briefs

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No technical talks.

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No computer programs.

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No tech briefs.

Patents

No patents.

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Contractor Reports

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Patents

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PUBLICATIONS FOR OFFICE OF DIRECTOR FOR SYSTEMS ENGINEERING AND OPERATIONS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

PUBLICATIONS FOR SYSTEMS SAFETY, QUALITY AND RELIABILITY DIVISION

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

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Meeting Presentations

No meeting presentations.

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No technical talks.

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

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Formal Reports

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Contractor Reports

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1706. Moore, A. S.; Mauldin, L. E., III; Stump, C. W.; Fabert, M. G.; and Reagan, J. A.: Calibration of the Halogen Occultation Experiment Sun Sensor. Presented at the SPIE 30th Annual International Technical Symposium on Optical and Optoelectronic Applied Sciences and Engineering, August 17-22, 1986, San Diego, California. SPIE Paper No. 685-27. Proceedings pending.
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(Subject Category 02 RTOP 505-31-53)

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Computer Programs

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Tech Briefs

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- 712. Ahl, E. L., Jr.: Latching Mechanism For Deployable/Restowable Columns Useful in Satellite Construction. U.S. Patent 4,587,526. Issued May 6, 1986.
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Formal Reports

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(Avail: NTIS Subject Category 26 RTOP 323-53-71)

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1714. Brown, S. J.: Pressure Systems Energy Release Protection (Gas Pressurized Systems). (NAS1-17278 Quest Engineering Development Corporation.) NASA CR-178090, May 1986, 435 p.
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1716. Leis, B. N.; Goetz, D. P.; and Scott, P. M.: The Influence of Defects on the Fatigue Resistance of Butt and Girth Welds in A106B Steel. (NAS1-17404 Battelle Columbus Division.) NASA CR-178114, July 1986, 107 p.
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Meeting Presentations

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(Subject Category 83 RTOP 546-01-11)

Technical Talks

1718. Leis, B. N.; Goetz, D. P.; and Hudson, C. M.: Fitness-for-Purpose Evaluation of Weldments in Fatigue. Presented at the ASTM Nineteenth National Symposium on Fracture Mechanics, June 30 - July 2, 1986, San Antonio, Texas.
(Subject Category 39 RTOP 323-53-71)

Computer Programs

No computer programs.

Tech Briefs

No tech briefs.

Patents

No patents.

PUBLICATIONS FOR OPERATIONS SUPPORT DIVISION

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

No technical talks.

Computer Programs

No computer programs.

Tech Briefs

1719. Gardner, M. R.: Continuous Linear Alignment Testing Grips. NASA Tech Brief LAR-13493.

1720. Ward, S. W.: Surface Conduction Thread-Mounted Instrumentation Thermocouple. NASA Tech Brief LAR-13475.

Patents

No patents.

PUBLICATIONS FOR OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

1721. Research Information and Applications Division (Compiler): Scientific and Technical Information Output of the Langley Research Center for Calendar Year 1985. NASA TM-87655, January 1986, 276 p.
(Avail: NTIS Subject Category 82)

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1723. Moore, A. T.; and Pinelli, T. E.: High-Speed Imaging - An Important Industrial Tool. Technical Photography, Volume 18, No. 5, May 1986, p. 22-25, 44.
(Subject Category 35)
1724. Pinelli, T. E.: Introduction. Journal of the Society for Technical Communication, Special Issue on Research in Technical Communication, Volume 32, No. 4, Fourth Quarter 1985, p. 6-7.
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1725. Pinelli, T. E.; Cordle, V. M.; and McCullough, R.: A Survey of Typography, Graphic Design, and Physical Media in Technical Reports. Journal of the Society for Technical Communication, Volume 33, No. 2, Second Quarter 1986, p. 75-80.
(Subject Category 82)

Meeting Presentations

1726. McCaskill, M. K.; and Huffman, J. P.: The Use of T_eX for Technical Typesetting. Presented at the Society for Technical Communication 33rd International Technical Communication Conference (ITCC), May 11-14, 1986, Detroit, Michigan. In Proceedings, p. 81-84.
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1727. Pinelli, T. E.; and Fedors, E. G.: Effective Oral Presentations: A Visual Point of View. Presented at the Society for Technical Communication 33rd International Technical Communication Conference (ITCC), May 11-14, 1986, Detroit, Michigan. In Proceedings, p. 343-346.
(Subject Category 82)

Technical Talks

1728. Williams, W. L.: Civilian Federal Research Management - The NASA Experience. Presented at the Institute of Management Sciences National Conference, April 14-16, 1986, Los Angeles, California.
(Subject Category 81 RTOP 023-10-01)

Computer Programs

1729. Avery, D. E.; Vann, A. V.; Jones, R. H.; and Rew, W. E.: AMS--Acquisition Management Subsystem. NASA Tech Brief LAR-13588.

Tech Briefs

1730. Avery, D. E.; Vann, A. V.; Jones, R. H.; and Rew, W. E.: AMS--Acquisition Management Subsystem. NASA Tech Brief LAR-13588.

Patents

No patents.

PUBLICATIONS FOR AEROSTRUCTURES DIRECTORATE, USAARTA (AVSCOM)

Formal Reports

No formal reports.

Quick-Release Technical Memorandums

No quick-release technical memorandums.

Contractor Reports

No contractor reports.

Journal Articles and Other Publications

No journal articles and other publications.

Meeting Presentations

No meeting presentations.

Technical Talks

1731. Farley, G. L.: Crash Energy Absorbing Composite Helicopter Structure. Presented at the Rensselaer Polytechnic Institute Workshop on Composite Materials and Structures for Rotorcraft, September 10-11, 1986, Troy, New York.
(Subject Category 24)
1732. Nixon, M. W.: Application of Composite Materials for Improved Rotor Blade Performance. Presented at the Rensselaer Polytechnic Institute Workshop on Composite Materials and Structures for Rotorcraft, September 10-11, 1986, Troy, New York.
(Subject Category 24)

Computer Programs

No computer programs.

Tech Briefs

1733. Noonan, K. W.: High Lift, Low Pitching Moment Airfoils. NASA Tech Brief LAR-13215.

Patents

No patents.

APPENDIX

INDUSTRIAL APPLICATIONS CENTERS

Aerospace Research Applications Center
Indianapolis Center for Advanced Research
611 N. Capital Avenue
Indianapolis, IN 46204
(317) 264-4644

Kerr Industrial Applications Center
Southeastern Oklahoma State University
Station A, Box 2584
Durant, OK 74701
(405) 924-6822

NASA Industrial Applications Center
University of Pittsburgh
823 William Pitt Union
Pittsburgh, PA 15260
(412) 624-5211

NASA Industrial Applications Center
University of Southern California
Research Annex, Room 200
3716 South Hope Street
Los Angeles, CA 90007
(213) 743-6132

New England Research Applications Center
Mansfield Professional Park
Storrs, CT 06268
(203) 486-4533

North Carolina Science and Technology Research Center
Post Office Box 12235
Research Triangle Park, NC 27709
(919) 549-0671

Technology Applications Center
University of New Mexico
Albuquerque, NM 87131
(505) 277-3622

NASA/Florida State Technology Applications Center
State University System of Florida
307 Weil Hall
Gainesville, FL 32611
(904) 392-6626

NASA/UK Technology Applications Program
University of Kentucky
109 Kinhead Hall
Lexington, KY 40506-0057
(606) 257-6322

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